Subject: MPS/PM-1 (Aqua) Beta Release 6.0 Delivery Letter
Date: Fri, 28 Jul 2000 16:53:25 -0400
From: equintin@csc.com
To: wfuller@pop500.gsfc.nasa.gov

Mr. Fuller:

We are pleased to deliver Release 6.0 (Beta version) of the ETS Multimode Portable Simulator for PM-1 (MPS/Aqua). This beta delivery is being made to make available needed capabilities and enhancements to facilitate development and testing of EMOS for PM-1. Included in this delivery are major enhancements to the scenario processing capability, as well as the ability to set and display telemetry parameter values in Engineering Units as well as raw counts. The new capabilities are completely described in Attachment B.

Although this is being treated as an engineering release for delivery purposes, it does not modify or affect operation of the existing Release 5.0/5.1 in any way. The installation scripts have been set up to create a Release 6.0 directory structure for the new files. While the Oracle database must be modified to support the new capabilities, that modification has been verified to be transparent to Release 5.0/5.1.

There are four attachments to this letter. The first attachment contains the installation instructions. The second attachment contains instructions for re-ingesting the spacecraft Project Data Base (PDB) and usage instructions for the new capabilities. The third attachment contains an updated release history summary matrix. The fourth attachment contains an updated Mission Systems Configuration Management (MSCM) form.

The updated software executable modules are being delivered on CD-ROM. Two copies of the CD are being given to Guy Cordier, who will forward one copy to Raytheon at Denver and will use the other for installation on the MPS/PM-1 simulator PCs in Building 32 at GSFC.

(See attached file: AttachA.doc)
(See attached file: AttachB.doc)
(See attached file: AttachC.doc)
(See attached file: AttachD.doc)

If you have any questions about this delivery, please do not hesitate to contact me, or Estelle Noone.

Ernest Quintin

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Attachment A – Release 6.0 Installation Instructions

This attachment contains the instructions for installing the MPS/PM-1 Release 6.0 Server and Client.

NOTE

Release 6.0 is capable of using information from the PDB to set and display telemetry parameter values in Raw Data and in Engineering Units. For this reason the PDB must be re-ingested into Oracle prior to initializing the simulator for the first time. The PDB database created by the new scripts is useable by previous versions of the simulator.

Instructions for installation of the PM-1 Server and Client software:

1. Insert the delivery media into the appropriate drive.

2. To install the PM-1 Client:
   a) On the desktop, click on the Start button, and then select Run from the resulting menu.
   b) When the Run window appears select the Browse… button.
   c) From the Browse Window, select the Removable drive that contains the installation disk
   d) Click on the Client folder.
   e) From within the Client folder, double click on the Setup.exe icon.
   f) The screen will be filled with a PM-1 Client background and a smaller window with the title "Welcome to PM-1 Client 6.0" will appear. Click on the Next button to proceed to the next step.
   g) The next window will contain the licensing agreement. Click on Yes to accept the agreement and proceed.
   h) After all of the files are copied, a window with the title "Setup Complete" will appear. Click on the Finish button to end.
   i) A PM-1 Client icon will now be installed on the desktop.

3. To install the PM-1 Server:
   a) On the desktop, click on the Start button, and then select Run from the resulting menu.
   b) When the Run window appears select the Browse… button.
   c) From the Browse Window, select the Removable drive that contains the installation disk
   d) Click on the Server folder.
   e) From within the Server folder, double click on the Setup.exe icon
   f) A window with the title "Run Window" will appear. Click on the Okay button to proceed to the next step.

g) The screen will then be filled with a PM-1 Server background and a window with the title of “Welcome to PM-1 Server 6.0” will appear. Click the Next button to proceed.
j) The next window will contain the licensing agreement. Click on Yes to accept the agreement and proceed.
h) Next a window will show the completion status as the files are copied. When the copying is complete click on the Finish button to finish the installation.
i) A PM-1 Server icon will be installed on the desktop.

Finally, copy the contents of the “Database” folder of the PM-1 Simulator CD to the “d:\pm1_db\scripts”folder, overwriting any existing files. See the instructions in Attachment B for re-ingesting the PDB.

Attachment B - Special Operating Instructions

This attachment contains the special operating instructions for MPS/Aqua Release 6.0 Beta version.

There are two mandatory configuration changes required before this version of the simulator may be run. Additionally, there are instructions for using the additional capabilities provided in this release.

Note #1: When building new projects using Release 6.0, the command input channel (from GSPM1 or Serial Input modules) must now be connected to the SCPM1 module's **input channel 2.** [In previous releases, it was connected to input channel 1.] The scenario module output channel is connected to the SCPM1 module's input channel 1.

Note #2: Since processing of telemetry points using Engineering Units is being added with this release, additional tables from the project database must be read during database loading. If the new database scripts are not executed prior to the simulator startup, the database initialization step will fail.

SPECIAL OPERATING INSTRUCTIONS

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PROJECT CONFIGURATION CHANGES (REQUIRED)

- When building new projects in Release 6.0, the command input channel (from GSPM1 or Serial Input modules) must now be connected to the SCPM1 module's **input channel 2.** [In previous releases, it was connected to input channel 1.] The scenario module output channel is connected to the SCPM1 module's input channel 1.

- An additional folder, named "scenario", is now created under the server folder. This is the default location for storage of scenario files. User-created scenario files may be copied to this folder for ease of use. Additional information on scenario file storage is provided in a later section.

- Certain operational characteristics of the MPS Server are controlled by a property file. While most of these properties control debug output (normally inhibited) there are two that may be of interest to the users. These are event message log file size and scenario file execution mode. The details for controlling these properties are presented in a later section.

DATABASE CONFIGURATION CHANGES (REQUIRED)

As noted previously, Release 6 of the MPS/Aqua simulator makes use of PDB information to display and set telemetry parameter values in Engineering Units. In order to do this, the **tlm_calcurve.pdb** and **tlm_polyconv.pdb** files must be ingested into the Oracle database. Perform the following steps to do this.

Note: These directions assume that the June 14th PDB is in use. If another version of the PDB has been loaded, the directions from Attachment D of the Release 5.0 delivery letter should be used.

- Using Explorer, log onto Toronto as an FTP site. The URL and directory path for the June 14th PDB are:

  ftp://198.118.192.20 `/pub/fot/pm1/pdb/06_1403_00/output`

- Retrieve the tlm_calcurve_060000.pdb and tlm_polyconv_060000.pdb files and store them in the D:\pm1_db\pdb_data folder.

- Truncate the names of the files by removing the "_060000" string.

- Using Windows Explorer, or My Computer, navigate to the D:\pm1_db\scripts folder and double-click on the BUILDPM1.Bat batch file. This will re-ingest the PDB, including the two new files.

SCENARIO PROCESSING CHANGES

There have been several improvements to scenario script execution in this release. Execution of multiple scenario scripts simultaneously, invocation of a scenario script from another, and execution of a scenario script in response to a command received have all been added. In addition, the User Interface to the scenario module has been improved so that the user may control up to five different scenarios using this interface. A file browser has been added to the end of the filename entry fields.

Note: The file browsing software has 2 known problems.
Problem 1: Attempting to navigate to folder names that start with a number will crash the scenario module.
Problem 2: The file browser cannot navigate to folder names that contain spaces. If this is attempted, the folder name will not appear in the filename field.

Scenario scripts that are started in response to commands received, or are triggered from within another scenario, are not subject to normal operator control. These scenarios must always run to completion.

Note: The only way to stop internal scenarios is to issue a stop to the entire project and then issue another run. All scenarios will be stopped. Unfortunately, there will probably be dropouts in telemetry.

Instructions for Triggering Scenarios from Commands

Create a file named **Command-Scenario.txt** in the scenario folder. (The scenario folder is under the server folder at the same level as the properties, elog, and save folders.) The detailed format for this definition file is provided in the next section and an example file has been provided in the scenario folder with the delivery. The definition file will be read during database initialization and the information will be stored in memory. Event messages will be generated for any invalid command mnemonics and any invalid scenario filenames in the definition file.

During run-time the operator may request that the Command-Scenario.txt definition file be read in again replacing the previous definitions. To do this, enter the following directive to the SCPM1 module

set ReadScenFile 0

Check the event message log for status and error messages.

A scenario file can start another scenario file. The syntax for this within a scenario file is

start scenario *filename*

where *filename* may be a full or relative pathname. Files are assumed to be relative to the scenario folder unless a full path name is provided.

Format of the Scenario Definition File (Command-Scenario.txt)

1. Command-scenario pairs are specified by the following format:

   command mnemonic | scenario filename

2. One pair is specified per line with the "|" (or-bar) character as the delimiter. Leading and trailing spaces and tab characters will be removed so these characters may be used to align the data.

3. The scenario filename may be specified as a full or relative pathname. Relative pathnames will start from the scenario folder.

4. Each command mnemonic should only appear in the definition file once. Only the first definition will be used.

5. Any line starting with ";" in column one is ignored as a comment.

6. Blank lines are also ignored.

Instructions for Using an Alternate Scenario Folder (Optional)

The user does not have to use the default scenario folder (..\PM1 Server 6.0\scenario) to store their scenario files. If a user wishes to maintain and use a set of scenario files separate from other users, place them in a specific folder on the disk. For example, you might want to use D:\My-Scenarios. If you do so you must adhere to all of the following rules.

1. Include a Command-Scenario.txt definition file in this folder. It may be a copy of the definition file in the scenario folder, or one of your own making.

2. After the PM1 simulator is running, change the location of the definition file to your folder by sending the following directive to the SCPM1 module.

   set scenarioPath D:\My-Scenarios\

   Do not use quotes around the folder name and do not forget the ending slash.

3. Instruct the SCPM1 module to re-read the scenario definitions using your file. Any existing definitions will be deleted and replaced by those in your definition file. The directive to be sent to the SCPM1 module is

   Set readScenFile 0

4. Any reference to a scenario file from within the definition file or within a scenario file MUST use the file's fully specified path name. For example, an entry in the definition file might be:

   CDH_EXECUTE_TIENOP | D:\My-Scenarios\tienop.txt

5. If another scenario calls tienop.txt, the format for the calling statement in that file is:

   Start scenario D:\My-Scenarios\tienop.txt

There are advantages and disadvantages to using an alternate scenario folder.

Disadvantages of using an Alternate Scenario Folder

1. One disadvantage of this method is that all of the scenario files MUST be fully specified in order to control which files will be executed.

2. Also, steps 2 and 3 above must be done each time the simulator is started. To minimize the effort, place these directives in a scenario file with a name like Use-My-Scenarios.txt. Keep a copy of this scenario file in your alternate folder. After the simulator is running, use the Scenario module GUI browser to navigate to the alternate folder and execute the Use-My-Scenarios.txt file.

Advantages of using an Alternate Scenario Folder

1. Once the alternate scenario folder has been set up, it is done. It will not be necessary to copy scenario files to a different folder with each new PM1 simulator delivery.

2. Users would be less likely to overwrite, delete, or modify each other's scenario files.

3. Users can organize their scenario files in different folders and/or sub-folders as desired.

USING ENGINEERING UNITS

As noted above, with Release 6 the MPS/Aqua simulator is capable of setting and displaying telemetry parameter values in Engineering Units. In order to do this a special container name has been added to the container for every telemetry point. It consists of the telemetry mnemonic followed by two underscores and the letters 'EU'. An example follows:

To set telemetry point AIR_TS_CABBTEMP3 using raw counts, enter:

```
set AIR_TS_CABBTEMP3  6061
```

To set the same telemetry point using Engineering Unit values, enter either

```
set AIR_TS_CABBTEMP3__EU  98.6
```

or

```
set AIR_TS_CABBTEMP3__EU  9.86E1
```

This works exactly the same when using the Display/Set Container Item window. If a telemetry point is displayed in both raw counts and EU, when one is set to a new value the other will follow. If an attempt is made to set both to different values, the telemetry point will be set to the value that is lower in the displayed list.

USING THE DIRECTIVE LINE HISTORY LIST

The directive line area has been enhanced with a history of the last ten entries. To use, click the down arrow to the right of the entry line, click on the desired entry, optionally edit the line, and use the enter key to submit the line for processing.

SETTING SERVER PROPERTIES

Certain operational characteristics of the MPS Server are controlled by a property file. The two that may be of most interest to the users are the event message log file size and the scenario module execution mode. To change either of these properties the user must use Windows Explorer, or My Computer, to navigate to the C:\Program Files\csc\PM1 Server 6.0\properties folder. Use Notepad to edit properties.txt. After saving the edited file, reinitialize the simulator so the new values will take affect.

Event Message Log File Size. As delivered, the event message log will hold 10000 entries. To change this value, locate the line in properties.txt beginning with "EventMsgLogSize" and change the argument to a new decimal number.

Scenario Module Execution Mode. As delivered, the scenario module will execute scenario scripts simultaneously limited only by CPU capacity. However, the execution of large numbers of short scenario files may cause a server crash. If this occurs, and it is necessary to run the scenario scripts that caused the crash, the scenario module may be

instructed to execute scenario scripts serially rather than simultaneously. Each scenario file request will be queued and executed in turn.

To effect this change, locate the line in properties.txt beginning with "ConcurrentScenario" and change its argument to 0.

LOG FILE NAMES

With Release 6, the event log is no longer overwritten when the simulator is started up. To prevent this, and to cause the event log files to be self-identifying, the log file name contains the date and time that the simulator was initialized. The log files, which are stored in the ..\PM1 Server 6.0\elog subfolder, are named elSave0-*modahhmmss*, where mo signifies month, da is the day, hh is the hour, mm is the minute, and ss is the second.

MODIFYING EDOS SERVICE HEADER FIELDS

With the Beta delivery of Release 6, it is possible to control the settings of the EDOS Service Header (ESH) fields. The GSPM1 module applies an ESH to every telemetry and CLCW packet it receives for transmit. The following table gives the ESH field descriptions and the container names (omitting asterisks) for the corresponding directives. A GUI window will be provided with the final delivery of Release 6.

ESH Field Name	SIZE	Telemetry Header container name	CLCW Header container name
ESH Version Number	4 bits	EduHeaderGSTlmCh1Version	EduHeaderGSClcwVersion
SDU Type	4 bits	EduHeaderGSTlmCh1SduType	EduHeaderGSClcwSduType
PB5 Time	7 bytes	Access via the GS Module Set/Display GMT menu option.	Access via the GS Module Set/Display GMT menu option.
EDOS Port ID	1 byte	EduHeaderGSTlmCh1PortId	EduHeaderGSClcwPortId
Source VCDU Sequence Counter Discontinuity	1 bit	EduHeaderGSTlmCh1SourceDiscontinuityFlag*	EduHeaderGSClcwSourceDiscontinuityFlag*
VCDU Contains Playback Data	1 bit	EduHeaderGSTlmCh1PlaybackDataFlag	EduHeaderGSClcwPlaybackDataFlag
Recovery Processing Indicator	1 bit	EduHeaderGSTlmCh1RecoveryProcessingFlag	EduHeaderGSClcwRecoveryProcessingFlag
Test Data Indicator	1 bit	EduHeaderGSTlmCh1TestDataFlag	EduHeaderGSClcwTestDataFlag
CRC Failure Indicator	1 bit	EduHeaderGSTlmCh1CRCfailureFlag*	EduHeaderGSClcwCRCfailureFlag*
Path SDU Source Seq. Counter Discontinuity	1 bit	EduHeaderGSTlmCh1PathDiscontinuityFlag*	EduHeaderGSClcwPathDiscontinuityFlag*
Packet Length Error	1 bit	EduHeaderGSTlmCh1PktLengthErrorFlag*	EduHeaderGSClcwPktLengthErrorFlag*
Packet Fill Indicator	1 bit	EduHeaderGSTlmCh1PacketFillFlag*	EduHeaderGSClcwPacketFillFlag*
Spare	2 bits	EduHeaderGSTlmCh1FirstSpare	EduHeaderGSClcwFirstSpare
Source VCDU Id	14 bits	EduHeaderGSTlmCh1SCID EduHeaderGSTlmCh1VCID	EduHeaderGSClcwSCID EduHeaderGSClcwVCID
Location 1st byte Fill Data For Path SDU	2 bytes	EduHeaderGSTlmCh1FillLocation	EduHeaderGSClcwFillLocation

Spare	4 bytes	EduHeaderGSTlmCh1SecondSpare	EduHeaderGSClcwSecondSpare
RS Error Control Flag	1 bit	EduHeaderGSTlmCh1Rsstatus*	EduHeaderGSClcwRSstatus*
Source VCDU Header Error Decode Results	5 bits	EduHeaderGSTlmCh1HeaderErrorCount	EduHeaderGSClcwHeaderErrorCount
Source VCDU Error Decode Results	10 bits	EduHeaderGSTlmCh1TotalErrorCount	EduHeaderGSClcwTotalErrorCount

* The items marked with an asterisk are non-sticky. That is, they reset to zero after the transmission of one packet.

Examples:

To see the current value of the ESH Version Number in the CLCW Header, enter the following directive to the GSPM1 module. Its current value will be displayed in an event message. (Container names are not case-sensitive.)

```
get EduHeaderGSClcwVersion
```

To set the value of the ESH Version Number in the CLCW Header to 1, enter the following directive to the GSPM1 module.

```
set EduHeaderGSClcwVersion 1
```

Attachment C - Release History Summary Matrix

Attached is the release history summary matrix, which reflects the MPS/PM-1 Release 6.0 Beta delivery.

Release History Summary Matrix

System: **MPS/Aqua**

Release Number		1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.1	6.0 Beta
Delivery Date		7/30/99	9/2/99	9/24/99	10/25/99	11/18/99	12/17/99	1/21/00	3/17/00	5/12/00	6/22/00	7/28/00
Configuration Item	CI No.											
Core (Client)	1.1	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
Core (Server)	1.2	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
SC-PM1 (Client)	1.3	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.0	6.0
SC-PM1 (Server)	1.4	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.1	6.0
GS (Client)	1.5	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.0	6.0
GS (Server)	1.6	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.0	6.0
IP Input (Client)	1.7	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
IP Input (Server)	1.8	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
IP Output (Client)	1.9	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
IP Output (Server)	2.0	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
DQM (Client)[1]	2.1											
DQM (Server)[1]	2.2											
Logging (Client)	2.3	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0
Logging (Server)	2.4	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0

[1] To be delivered in a future release

Release Number		1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.1	6.0 Beta
Delivery Date		7/30/99	9/2/99	9/24/99	10/25/99	11/18/99	12/17/99	1/21/00	3/17/00	5/12/00	6/22/00	7/28/00
Configuration Item	CI No.											
Scenario (Client)[2]	2.5								1.0	1.1	1.1	2.0
Scenario (Server)[2]	2.6								1.0	1.1	1.1	2.0
Serial Input (Client)[2]	2.7								1.0	1.1	1.1	2.0
Serial Input (Server)[2]	2.8								1.0	1.1	1.1	2.0
Serial Output (Client)[2]	2.9								1.0	1.1	1.1	2.0
Serial Output (Server)[2]	3.0								1.0	1.1	1.1	2.0

[2] New in Release 4.0

Attachment D — Mission Systems Configuration Management Form

This attachment contains the completed Mission Systems Configuration Management (MSCM) form for the delivery of MPS/PM-1 Release 6.0 Beta.

Mission Systems Configuration Management Form

1. ORIGINATOR	2. ORGANIZATION	3. PHONE	4. E-MAIL ADDRESS
Estelle Noone	CSC	301-805-3653	enoone@csc.com

5. ELEMENT	6. INSTALLATION PRIORITY	7. TRACKING NUMBER (Assigned by CM Office)
ETS (MPS/PM-1)	Routine	

8. SOURCE CHANGE REQUEST(S):

ETS delivery of MPS for EOS PM-1 (MPS/PM-1)

9. APPROVALS

Element Manager _____ / /

Flight Ops Director _____ / /

Operations Manager _____ / /

10. DELIVERED SYSTEM (Check all that apply)

	Name	Version	Media Identification	Identification Date
☐ Hardware				
☒ Software	MPS/PM-1	R6.0 Beta	CD-ROM	07/28/00
☐ Database				
☒ Documentation:				
MPS/PM-1 Delivery Package		N/A	via email	07/28/00
☐ Other				

11. CHANGE DESCRIPTION

Release 6.0 (Beta release) of MPS/PM-1 (SIMSS/PM-1)

12. ATTACHMENT(S): Check if YES ☒

Description: MPS/PM-1 Release 6.0 Beta delivery package (cover letter with attachments) dated 07/28/00

13. CM OFFICE USE

	Location (Bldg/Room)	Slot location(s)
Hardware	/	
Media	/	
Documentation	/	

Installation date / / CM Office Signature _____

Form MSCM (970327)